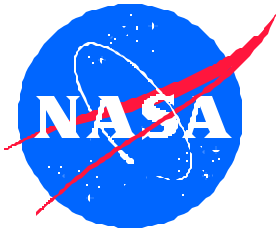
Polar Operational Environmental Satellites (POES) Program

Continuous Risk Management (CRM) Plan

S-480-121 Revision B

OCTOBER 2002



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S-480-121

POES PROGRAM CRM PLAN

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http://poes.gsfc.nasa.gov/iso/baseline.pdf
TO VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE

CHANGE HISTORY LOG

Revision	CCR	Effective Date	Description of Changes
Baseline	1700	1/21/2000	
A	1755	8/22/2000	Figure 1 and Acronym List--changes to functional job description. Section 5.1--database color scheme.
B	1832 A	9/13/2002	Figure 1 – changes to organizational structure (addition of METOP Mission Manager/deletion of AMSU/MHS Instrument Systems Manager/Change from POM to DPM). Section 3.2 – delete the requirement for weekly meetings & add Program Support Manager. Section 4.2 changes to risk weighting criteria. Extensive rewrite to comply with the provisions of NPG 8000.4 GPG-7120.4 and updates to include: New review /approval. 6.0 & Figure 3 – Deleted problem tracking from risk process. Figure B1 – Updated risk identification form to reflect changes incorporated. Added 6.0 – FEMCA and CIL requirements. Added 1.2 Assumptions, Constraints and Policies. Update to 4.3 Risk Planning. Moved Table 2 “Communicating Risk” to 5.3 Risk Communication Section. Added: 7.0 Resources and Schedule of Risk Management Milestones and 8.0 Methodology Associated with Program Descope.

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1.0 Introduction

The National Aeronautics and Space Administration (NASA) Polar Operational Environmental Satellites (POES) Program, Continuous Risk Management (CRM) Plan defines the process and implementation of conducting CRM throughout the life-cycle of the POES Program. Implementing CRM for the program will provide a continuous risk process (identify, analyze, plan, track, and control) for all disciplines and phases, ensuring that communications and documentation are maintained across the entire program. The initial description of this process has been provided in the NASA Procedures and Guidelines (NPG) 7120.5A, NASA Program and Program Management Processes and Requirements Document. This CRM Plan is intended to complement overall POES Program Management and therefore CRM will be an integral part of program management. The implementation of this plan solicits inputs from everyone in the program, resulting in the Program Manager's final approval for implementation of this plan.

1.1 Purpose

The purpose of this document is to describe the CRM Plan for the POES Program. This includes brief descriptions of the CRM processes in order to carry out this effort. This plan will assist the program in performing informed decision-making, optimizing allocation and use of resources, and coordinating trade studies against cost, schedule, and performance goals.

1.2 Assumptions, Constraints, and Policies

It is expected that changes and improvements will be necessary over the course of time as CRM is adopted and used by the program. Any corrections or change recommendations should be forwarded to the Program. The POES CRM Plan will be reviewed at least annually and updated as required.

1. 3 Scope

This document describes a process for utilizing CRM in all aspects of the POES Program. The objective of CRM is to forecast and manage risks before they become problems. CRM applies to NASA, Goddard Space Flight Center (GSFC) activities, as performed by both civil servants and contractors supporting the POES Program, including the spacecraft, instruments, and all disciplines supporting the program. The objective of this effort is to formalize CRM from the inception of this plan to the completion of the program development, through launch and into operational support, throughout the programs complete life-cycle. To the extent possible, POES will utilize lessons learned from other GSFC Programs in carrying out this CRM Plan.

1.4 Document Organization

This document is organized into seven major sections.

Section 1	is an introduction and overview of this document.
Section 2	lists parent, applicable and reference documentation.
Section 3	describes risk management assignments and communication flow.
Section 4	provides an overview of the risk identification, analysis, and planning that will be used by the POES Program.
Section 5	describes the tracking, control, and communication necessary for CRM.
Section 6	documents the Program FEMA/CIL requirements
Section 7	describes resources and schedule of risk management milestones.
Section 8	describes methodology associated with program descope.
Section 9	describes the tools used to implement CRM on the POES Program.
Appendix A	contains a list of acronyms used in this document.
Appendix B	includes documentation figures for the Risk Information Sheet including process and instructions for filling it out and the Risk Tracking List form that will be residing on the web.
Appendix C	contains the POES Risk Management Process Diagram.

2.0 Related Documentation

This section lists the related documents.

2.1 Parent Document

GSFC S-480-125, Polar Operational Environmental Satellite (POES) Program Plan

2.2 Applicable Documents

NPG 7120.5A, NASA Program and Project Management Processes and Requirements Document, Revision A, Dated April 3, 1998

NPG 8000.4 Risk Management Procedures and Guidelines

GPG 7120.4 Risk Management

2.3 Reference Documents

Carnegie Mellon University, Continuous Risk Management Guidebook, Copyright 1996

GSFC Software Assurance Technology Center (SATC), Course Materials and Workshop Materials, Dated January 1999

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3.0 POES Risk Management Assignments and Communications Flow

This section provides the program personnel functional roles, responsibilities, and communication within the CRM process. CRM is carried out during the day-to-day activities of program personnel as well as during key program meetings.

3.1 POES Program Organization

Figure 1. depicts the organization as defined in the POES Program Operational Responsibilities 480-PG-1060.1.1. It is repeated here for convenience. This diagram illustrates the structure of the program team along with the functional role of each team member.

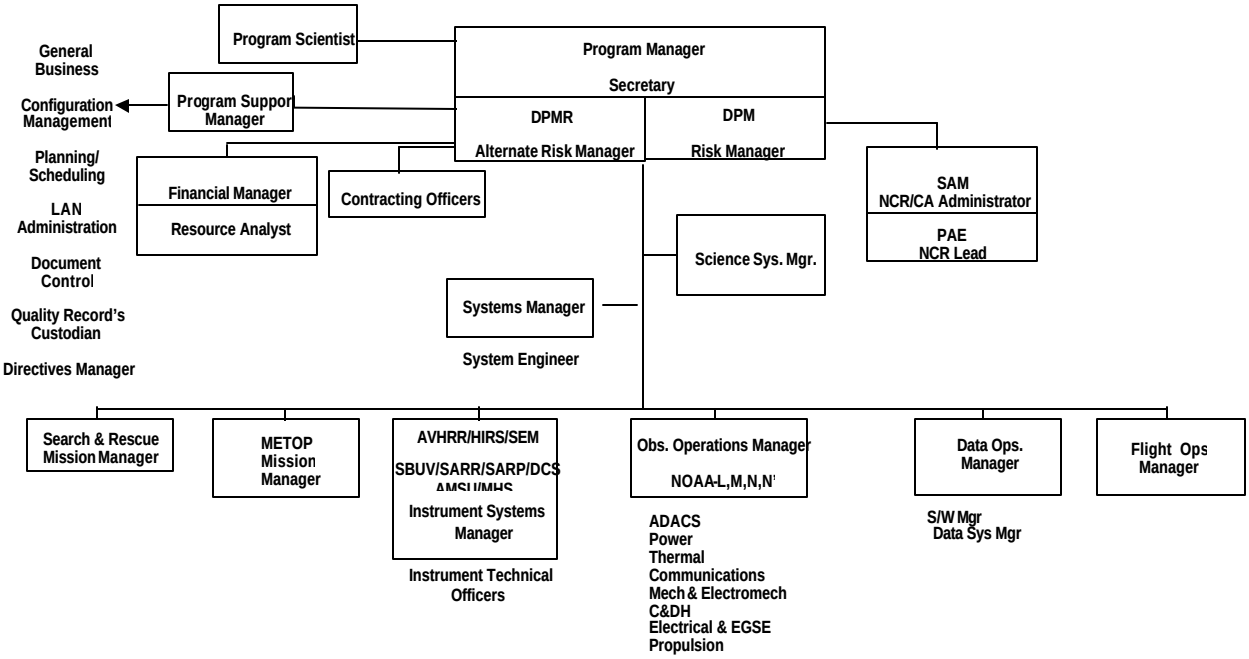

Figure 1. POES Program Operational Responsibilities

3.2 POES Risk Management Board

Program risks shall be managed by the POES Risk Management Board (PRMB). The PRMB shall meet to review, assess and update risks within the POES Risk Management Database. The PRMB is co-chaired by the Program Risk Manager (PRM) and Alternate / Program Risk Manager (A/PRM).

Board members shall be comprised from the following functional team members or their designated representatives:

- System Assurance Manager
- Systems Safety Manager
- Observatory Manager
- Instrument Systems Manager
- Systems Manager
- Flight Operations Manager
- Program Support Manager
- Financial Manager
- Program Scheduler
- Database Administrator
- National Oceanic and Atmospheric Administration (NOAA) Representative

Assigning responsibility: Figure 2 depicts the responsibilities of all program personnel as individuals, functional team members, PRMB members, PRM and program management for managing risk within the POES Program. The diagram identifies the personnel responsible for performing each specific CRM task. Figure 2 represents a shared responsibility for activities within the boxes

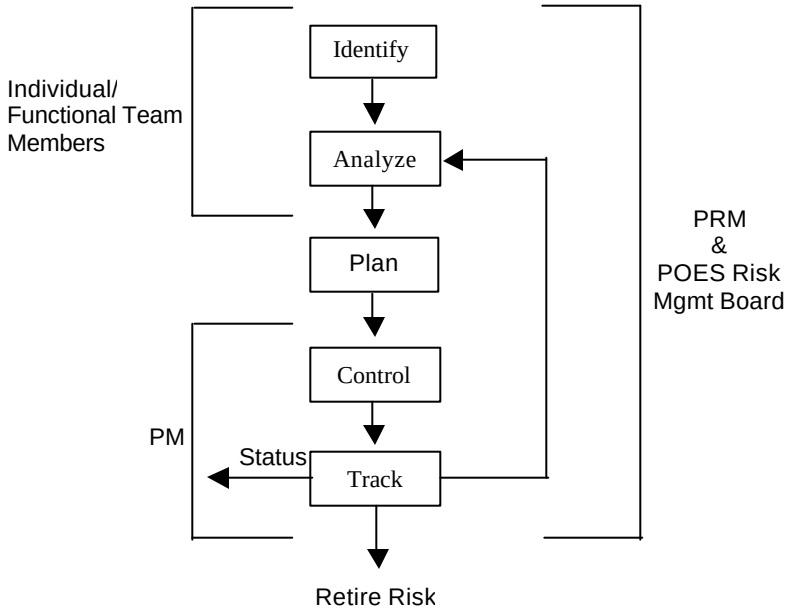

Figure 2. POES Program Risk Management Functional Assignments

Table 1. Responsibilities of Program Personnel Performing CRM

Who	Responsibilities
Individuals/ Functional Team Members	• identify new risks • estimate probability, impact, and time frame • classify risks (cost, schedule, technical) • recommend approach and actions • track risks and mitigation plans (acquire, compile, and report) • assist in risk prioritizing
POES Risk Management Board, Program Risk Manager	• integrate risk information from all individuals/functional team members • ensure accuracy of probability/impact/timeframe estimates and the classification • review recommendations on mitigation approach and action • reprioritize all risks to determine Medium & High risks • assign or change responsibility for risks and mitigation plans • report their Medium & High risks to the Program Manager • implement control decisions for risks • build action plans (determine approach, define scope, & actions) • collect and report general risk measures/metrics • coordinate communications with POES Program Manager
POES Program Management	• authorize expenditures of resources for mitigation • integrate risk information from all program leads • reprioritize all risks to determine the Top 20% program risks • make control decisions (analyze, decide, execute) for Top 20% program risks • assign or change responsibility for risks and mitigation plans within the program • coordinate communication with senior managers and external customers • review general risk measures/metrics with the PRMB during each quarter to evaluate effectiveness of risk management

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4.0 Risk Identification, Analysis, and Planning

Performing risk identification, analysis, and planning for the POES Program are the first three phases of CRM. These steps are necessary in recording and prioritizing Program risks. The following sections describe these phases for the Program.

4.1 Risk Identification

The process of risk identification is the determination of which risks are likely to affect the program and documenting the characteristics of each. This is an ongoing program activity that takes place during the routine program work flow. Program risks will be identified in program activities such as programmatic and technical meetings, telecons, reviews, and other communication interchanges. When this occurs, the risk (if not previously recorded) should be captured by placing it in the POES Risk Management Database to be analyzed and tracked.

The initial risk statement will contain the risk title, a concise context description (containing the condition and consequence), probability and impact. Performing this task provides the program the ability to transform uncertainties and issues into tangible and manageable risks. This also allows the program to locate and manage risks before they become problems.

As described above, risk identification is part of the ongoing program activities and not a separate discipline or group of activities. Risk identification is the responsibility of every individual involved in the POES Program. The overall objective of identifying and managing program risks is to reduce or eliminate risks before they become problems, thus resulting in increased chances of the Program's success.

Risks can be present in any area of the POES Program. Risks may be technical or programmatic and may be attributed to:

- inconsistent or incomplete requirements
- design oversights
- unproven technologies
- interface or integration difficulties
- unanticipated fault detection
- unforeseen quality and/or safety issues
- insufficient resources (e.g., mass power, data rate, computer capability)

These and other technical risks may be with the spacecraft, subsystems, instruments or any other part of the POES mission. The technical risks generally involve technical disciplines such as systems engineering, hardware and/or software engineering, parts engineering, manufacturing, or integration and test. Programmatic risks include all risks that are not technical by nature. However, technical risks may include some attribute of a programmatic risk likely to impact cost and/or schedule. Programmatic risks generally involve management resources, communications, and decisions.

4.2 Risk Analysis

Once a POES Program technical or programmatic risk has been identified and written as a risk statement (Condition; Consequence(s) + Context) in the POES Risk Management Database, it is then analyzed. The analysis of the risk statement considers three identifiers for prioritizing and establishing the importance of identified risks. The prioritization process is performed as a roll-up function starting at the risk element identified by the individual person and weighted through the risk process up to the system level. An identified risk may receive a higher prioritization at the element level than it would when rolled-up to the system level. These three identifiers for risk weighting at the system level are:

- Impact; the severity if risk should materialize
- Probability; the likelihood of risk occurrence
- Timeframe; the period when you must take action to mitigate the risk

The above three identifiers are prioritized into three levels or degrees as follows:

IMPACT (the severity if risk should materialize)

- **3 (H) High = Critical Impact**

  Potential individual contract cost overrun > 9%

  OR

  Exceeding the expected usage of Management Reserve (MR) for an individual contract.

  OR

  Exceeding Fiscal Year (FY) budget allocation

  OR

  Depleting Program management reserve by 10%

  OR

Spacecraft Launch Readiness Date (LRD) is later than the (NOAA) planned launch date.

OR

Loss of spacecraft, one or more instruments, or critical science data.

- **2 (M) Medium = Major Impact**

Potential individual contract cost overrun exceeding 5 to 9%

OR

Exceeding contractor FY budget request from Summer Program Operating Plan (POP)

OR

Depleting Program MR by 5%

Spacecraft LRD is later than the NOAA availability date

OR

Projected instrument delivery date to LMMS is after the LMMS need date.

OR

Projected instrument delivery date to METOP is later than the NOAA guideline need date.

OR

Loss of spacecraft, subsystem redundancy or instrument degradation; or impact to science data

- **1 (L) Low = Minor Impact**

Potential individual contract cost overrun up to 5%

Spacecraft LRD is < 14 days prior to the NOAA availability date.

OR

Projected instrument delivery date to LMMS is < 10 days prior to the LMMS need date.

OR

Projected instrument delivery date to METOP is < 10 days prior to the NOAA guideline need date.

OR

Need requirement redefinition; need design or implementation work-around; no loss of science data.

PROBABILITY (the likelihood of risk occurrence)

- High (H) = Very Likely 67 to 99%*****
- Medium (M) = Probably 34 to 66%
- Low (L) = Not Likely 1 to 33%

*** At 100% risk has escalated into an actual problem**

TIME (when the risk may occur)

- Near Term (N) = <60 days
- Mid Term (M) = 2-6 months
- Far Term (F) = >6 months

4.3 Risk Planning

In this phase of the POES CRM process, the program decides what action, if any, will be taken to manage/mitigate the risk or set of related risks.

All newly identified risks shall be assigned by the PRMB to someone within the program for responsibility. Accomplishment of actions contributing to the mitigation of the risk may be assigned. Responsibility for a risk means that the responsible person must answer for the status and mitigation of the risk to the PRMB.

The PRMB shall decide if the risk requires further research, accept the risk (document acceptance rationale in the database and close the risk), watch (define tracking requirements, document in the database, and assign watch action), or mitigate (create a mitigation plan, assign actions, and monitor the plan and the risk). Note that only red risks must be mitigated.

There are four actions that can be assigned to a risk by the PRMB. These options are:

- **RESEARCH** to gain more information about it.
- **ACCEPT** do nothing about it other than accept it.
- **WATCH** to identify “triggers” before taking any action about the risk.
- **MITIGATE** to reduce, eliminate or avoid risk.

5.0 Risk Tracking, Control, and Communication

Performing risk tracking, control, and communication for the POES Program is necessary to ensure risks are managed and are not lost in the process. The following paragraphs describe these three phases of the CRM process.

5.1 Risk Tracking

In the risk tracking phase, the POES Program acquires, compiles, and reports information on the identified risks. This phase is necessary to collect accurate, timely, and relevant program risk information and to present it in a clear manner. This information shall be provided at weekly PRMB Review meetings, monthly Internal Program Review (IPR) and will be included on the agenda as required.

Individuals and groups shall identify/document risks and shall track/report each risk to program management. The Program Manager controls the risks within the program and shall provide status to upper management. Any risk that is of high priority and needs support beyond the Program's capability will be brought to upper management's attention for their support and/or resolution.

Once risk items are entered and classified in the POES Risk Management Database by the Program Database Administrator (PDA), the risk will be assigned an exposure grade (Red/Yellow/Blue) based on the following combinations of the impact/probability.

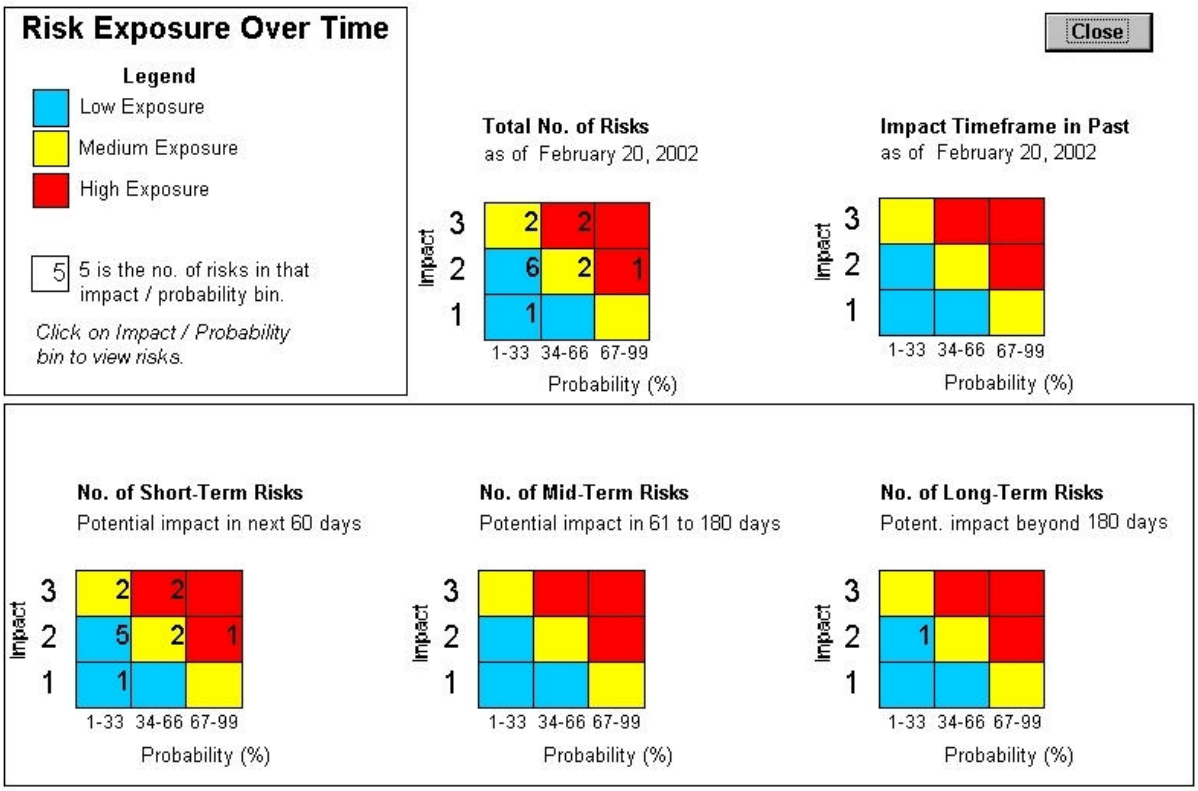

Figure 3. Risk Tracking

Items classified as Blue are acceptable without further mitigation and shall be routinely tracked for change in status or closed.

Items classified as Yellow require mitigation plan development. For these items, alternative dispositions will be identified and trade-offs conducted to determine the mitigation required. Future decision milestones will be identified to enable effective tracking of those risks for which immediate action is deemed not necessary.

Items classified as Red are considered primary risk drivers. For these items, mitigation options will be implemented. Red risks will be assessed for impact to budget reserves and will be tracked to closure.

Timeframe is used in conjunction with the Risk Classification Chart to determine priorities, establish when risks need to have actions taken, and how long risks may need to be watched or tracked before they no longer are a concern or can be closed.

Important POES Program technical and programmatic risks that are addressed by mitigation planning shall be monitored and tracked by the PRM for reduction and/or closure of the risk. This process shall attempt to provide some method of measurement to show progress toward achieving the prescribed goal.

Each identified program risk that is to be mitigated with a risk plan shall address how progress towards reduction or closure can be measured. It is good to note that only meaningful current data should be collected and measured for any given program risk.

5.2 Risk Control

During the controlling phase, informed, timely, and effective decisions are made regarding risks and their mitigation plans. Risk control is performed using standard POES Program management monitoring techniques. Controlling risks will be integrated and coordinated in the Program's routine management activities.

The following are mitigation plan decisions:

- Replan
- Close the risk
- Invoke a contingency/workaround plan
- Continue tracking and executing the current plan

The decision(s) to proceed on mitigation planning are essential and require current accurate data to effectively make the proper decision(s) in the control phase. The POES Program Manager will have the final decision on risk mitigation planning.

5.3 Risk Communication

Communicating risks on the Program provides personnel an understanding of the Program's overall status with regard to risks and mitigation alternatives. Successful risk communication raises the level of understanding of relevant issues or actions. CRM communications have the following characteristics:

- Free flow of information between individuals, groups, and the POES Program Management
- Inclusion of formal, informal, and impromptu communications
- Value of individual contributions
- Application of consensus voting of teams

Table 2 describes the criteria used for communicating and documenting risk information.

Communication Path	Risk to be Communicated/Documented
From Individuals/Functional Teams to PRM	• Any risk that impacts performance of mission • Any risk that impacts budget parameters (triggers) • Any risk that exceeds schedule parameters (or triggers) • Any risk that needs to be transferred to another team
From PRM to PRMB & Program Management	• Medium & high risks from the Individuals/Functional Teams • Medium & high risk trends and status • Mitigation activity status
Program Management to Senior Management	• Top 10% risks in the program • Any risk that impacts mission success • Any risk that impacts the technical and scientific aspects of the POES Program • Any risk that threatens planned launch dates • Any risk that cause the program budget to be exceeded by more than 9% • Any risk that negatively impacts NASA's reputation • Risk status

Table 2. Criteria for Communicating and Documenting Risk Information

The Program Risk Database shall be used, maintained, and controlled throughout the POES CRM process. This information will be available and reviewed by the Program personnel on a periodic basis.

POES Program shall have a website to provide access to risk status information. Appendix B depicts an example of the CRM tools used on the POES website.

6.0 Failure Modes, Effects and Criticality Analysis (FMECA) and Critical Items List (CIL)

The Failure Modes, Effects and Criticality Analysis (FMECA) and Critical Items List (CIL) for TIROS has been documented by the spacecraft vendor to identify the failure modes of the individual spacecraft bus equipment and to classify the failure modes by level of criticality to the mission objectives. Instrument FMECA's are documented by the individual instrument vendors if required by contract.

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7.0 Resources and Schedule of Risk Management Milestones

Resources for the management of risks are broken into two categories:

- overhead costs associated with the risk management process
- mitigation plan costs: resources associated with mitigation plans

Identification and planning for financial resources concerning risk management process activities and mitigation plan development / execution is provided in the bi-annual POES Program Operating Plan (POP) Process (see WI-480- 1310.1.1). Each Functional Area Manager is responsible for managing their mitigation resources (cost/schedule/personnel). Any requirements for additional mitigation resources must be made to the Program Manager.

Milestones

- Program PRMB meetings shall include statusing of risks.
- Top 20% risk status shall be summarized and reported to the Program Manager on a monthly basis.

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8.0 Methodology Associated with Program Descope

Should program descope be required, the Program Manager will assemble a team comprised of managers and technical leads to review options and new scope of operations. The Continuous Risk Management paradigm will apply to the new scope of operations.

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9.0 Risk Tools and Implementation

This section identifies the tools that will be used for CRM by the POES Program. These tools are utilized throughout the Program life-cycle for technical and programmatic risks. These tools are to be used by individuals, teams and management in identifying, analyzing, planning, tracking, and controlling program risks. The following tools are specifically used by this program:

- **CRM Training** The POES Program team has participated in a formal training session on CRM provided by the SATC Organization in October 1999. The class provided the CRM methods and tools required and identified in this plan. Any additional classes needed for future CRM training will be coordinated between the POES Program Manager, PRM, and SMO.

- **Mitigation Plans** These plans will be developed for a risk or set of risks (similar within the same family/closely related) that require significant resources to reduce or close the risk(s). Information required for a mitigation plan (technical and/or programmatic) includes:

  - Title and identification number of the program risk(s) from the Risk Management Database

  - Description of how the risk(s) will be mitigated and measurement(s) used to indicate progress. Provide method and frequency of reporting progress and status

  - Schedule and resources (hours, dollars, etc.) needed to implement the mitigation plan. Show the individual responsible for the activity and Program Manager approval to implement the mitigation plan.

- **Risk Identification Form** (http://poesinternal.gsfc.nasa.gov/risk/risk_home.htm) The POES Risk Identification Form is the means of identifying and documenting program risks. Information input to the form is forwarded to the POES Risk Management Database for review and assessment by the PRMB. Appendix B includes a POES Risk Identification Form template and process/instructions for entering data.

- **Risk Management Plan** (GSFC S-480-121) The Risk Management Plan defines how CRM will be implemented for the POES Program. This plan will be maintained by the PRM, reviewed at least annually, and updated as required. It is the PRM's responsibility, with the Program Manager's support, to ensure that this plan is implemented.

- **Risk Management Database** The POES Risk Management Database is maintained throughout the life of an identified risk Information is added to the database from the Risk Identification Form as it becomes known and/or available. The POES Risk Management Database will be maintained by the program database administrator.

- **Risk Tracking List** (http://poesinternal.gsfc.nasa.gov/risk/risk_home.htm) The Risk Tracking List (see Appendix B) provides a risk title, description and quick look-up for all identified and accepted program risks. It identifies the person assigned to work/monitor the risk, indicates the completion date for the risk and serves as a tickler file until risks are closed. The program network administrator is responsible for updating, maintaining, and disseminating this list.

- **POES Risk Management Process Diagram** (see Appendix C) The POES Risk Management Process Diagram depicts the program's risk management flow process. It is meant to portray that CRM is an overlay of ongoing activities and not a separate activity. It also portrays that the CRM Plan plays a major role in describing the POES CRM.

- **Program Metrics** There are various types of metrics supporting both technical and programmatic activities. POES has been using metrics in estimating and showing progress within the program. This effort will continue and will be used in management for risk monitoring, tracking, forecasting, and reporting.

- **POES Website** (http://poes2.gsfc.nasa.gov) will incorporate a template for entering risks into the POES Risk Management Database. The website will also include the Risk Tracking List for providing status of program risks and a configuration controlled version of the CRM plan.

- **Program Formal/Informal Meetings** All program formal and informal meetings should have CRM as a topic on the agenda when it is appropriate. These meetings are the means of providing the most effective communications to the program on CRM. Several tools are available to be used within meetings. They range from simple brainstorming, multi-voting and voluntary risk reporting to more formal fever charts, bar graphs, and logic networks.

Appendix A
Acronyms

This appendix contains an alphabetical list of all acronyms used in this document.

ADACS	Attitude Determination & Control System
AMSU	Advanced Microwave Sounding Unit
A/PRM	Alternate / Program Risk Manager
AVHRR	Advanced Very High Resolution Radiometer
CCB	Configuration Control Board
C+DH	Communications and Data Handling Subsystem
CM	Configuration Management
CRM	Continuous Risk Management
DCS	Data Collection System
DPM/R	Deputy Program Manager / Resources
EGSE	Electrical Ground Support Equipment
FY	Fiscal Year
GSFC	Goddard Space Flight Center
HIRS	High Infrared Resolution Sounder
IPR	Internal Program Review
LAN	Local Area Network
LMMS	Lockheed Martin Missiles and Space
LRD	Launch Readiness Date
MHS	Microwave Humidity Sounder
MR	Management Reserve
NASA	National Aeronautics and Space Administration
NCR	Non-Conformance Report
NOAA	National Oceanic and Atmospheric Administration
METOP	Meteorological Operational
NPG	NASA Procedures and Guidelines
PAE	Product Assurance Engineer
PDA	Program Database Administrator
POES	Polar Operational Environmental Satellites
POM	Program Operations Manager
PRM	Program Risk Manager
PRMB	POES Risk Management Board

POP	Program Operating Plan
SAM	System Assurance Manager
SARP	Search and Rescue Processor
SARR	Search and Rescue Repeater
SATC	Software Assurance Technology Center
SBUV	Solar Backscatter Ultraviolet Spectrometer
SEM	Space/Solar Environment Monitor
S/W	Software

Appendix B
Risk Information Form Process

The submitters of the risk provide the risk “title” and “description”, enters date in the “date submitted” field, and place their name in the "submitted by" field on the form. In addition they fill in the “Probability” and “Impact” fields and provide any additional comments prior to submitting the form on to the PRMB. PRMB members review the submission for completeness and board it at the next scheduled PRMB meeting as an agenda item to be reviewed for acceptance. At the review meeting, the risk impact, probability, and time frame will be determined for the individual risks and these values shall be added to the Risk Management Database. If accepted, the Risk is managed by the PRMB.

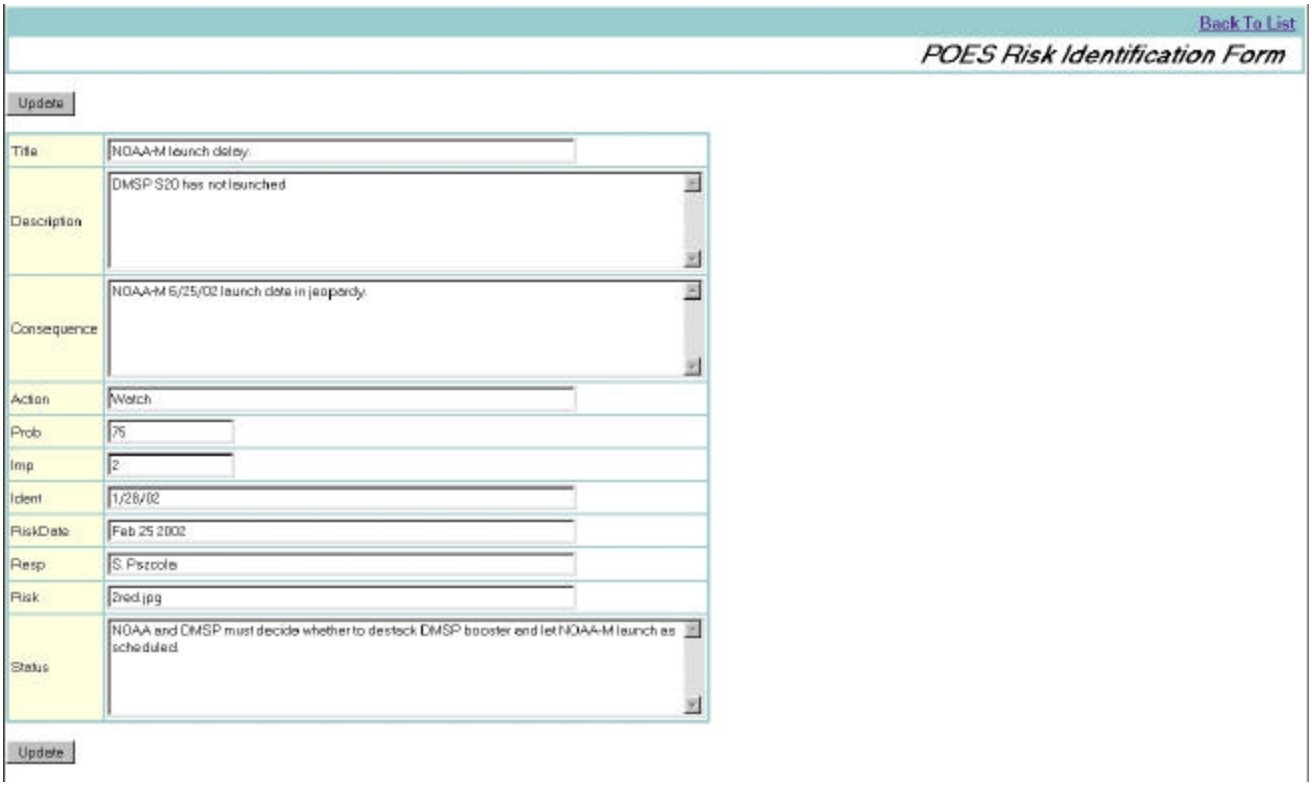


Figure B -1 - POES Risk Identification Form

POES Risk Information Form process/instructions:

STEP 1

This form is initiated by the risk author/originator by completing the:

- ***"Title"*** short title identifying the risk
- ***"Description"*** statement of the risk consisting of condition and consequence(s)
- ***"Submitted By"*** person or organization that identified the risk
- ***"Probability"*** the likelihood of risk occurrence
- ***"Impact"*** the severity if risk should materialize

STEP 2

The automated POES Risk Tracking System accepts the risk form from the submitter and holds the risk form along with all other risk forms for a PRMB review.

STEP 3

The weekly PRMB consists of the POES Program Line Managers and is chaired by the PRM and Co-chaired by the APRM or their designated representative(s). The PRMB will review the risk submittal for completeness and acceptance. The risk submittal is then placed in the Risk Management Database for tracking and managing. If the risk submittal is rejected the originator is notified along with the rationale. Minutes of the PRMB are taken and all risk actions are facilitated and/or tracked by the PRMB. The PRMB ensures that the website reflects all updates of POES risk information. The Program staff will review the status of the POES Risk Tracking List. The POES Program Manager has responsibility for approving the mitigation plans, and closing completed risks. Special topics dealing with CRM may require other individuals to support the PRMB as needed. The remaining fields on the risk form are incorporated at acceptance, during tracking and closure:

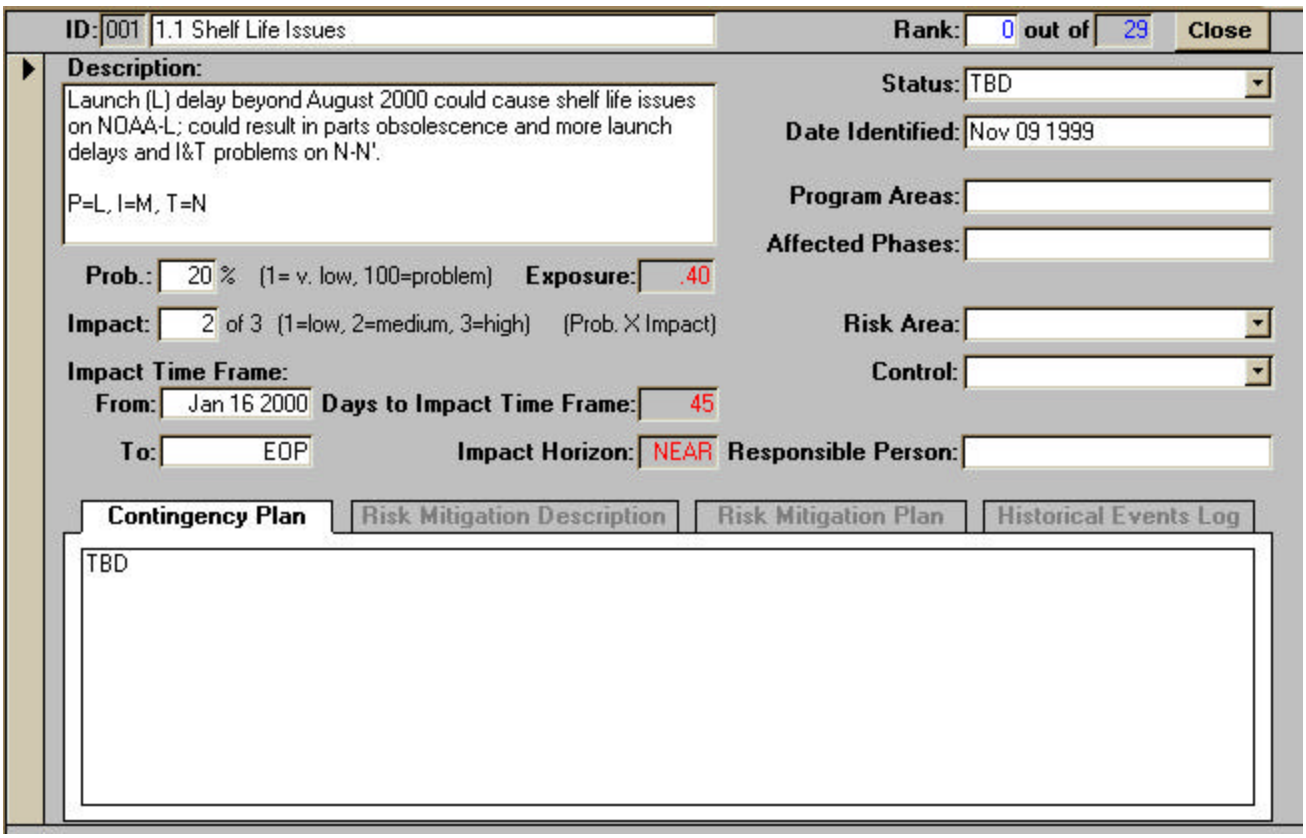


Figure B-2 - Risk Management Database

- ***"Probability"*** the likelihood of risk occurrence
- ***"Impact"*** the severity if risk should materialize
- ***"Impact Time Frame"*** the first field is the earliest date the risk impact could materialize and the second field is the latest date it could materialize
- ***" Exposure"*** a calculated value where risk exposure equals probability times impact
- ***"Days to Impact Time Frame"*** represents the number of days from the present to the impact time frame

"Impact Horizon" assigns the risk to an impact horizon category (Near/Mid/Far) term

- ***"Status"*** shows the current status of this risk in the risk management process
- ***"Program Areas"*** describes the program areas or components that are affected by the risk
- ***" Affected Phases"*** describes development phases
- ***" Risk Area"*** used to assign the risk a risk category
- ***" Control"*** used to indicate whether the source of the risk is internal or external to the program
- ***"Responsible Person"*** who is responsible for this risk
- ***"Contingency Plan"*** the set of actions that you will take should the risk materialize
- ***"Risk Mitigation Description"*** describes the approach or other background information regarding the mitigation efforts that will be taken on the risk
- ***"Risk Mitigation Plan"*** allows you to specify steps you wish to take in mitigating the risk
- ***"Historical Events Log"*** allows you to record events about the risk
- ***"Approval"***, ***"Closing date"***, and ***"Closing rationale"*** approval of closure and rationale

STEP 4

Once accepted the POES Risk Information Forms are incorporated into the Program Risk Management Database maintained and tracked to closure and kept on file. The POES Risk Tracking List provides status and a quick look-up for overall progress. The PRMB will maintain records for all CRM activity, and, with support from the PDA and Network Administrator, will keep the Risk Management portion of the website up to date.

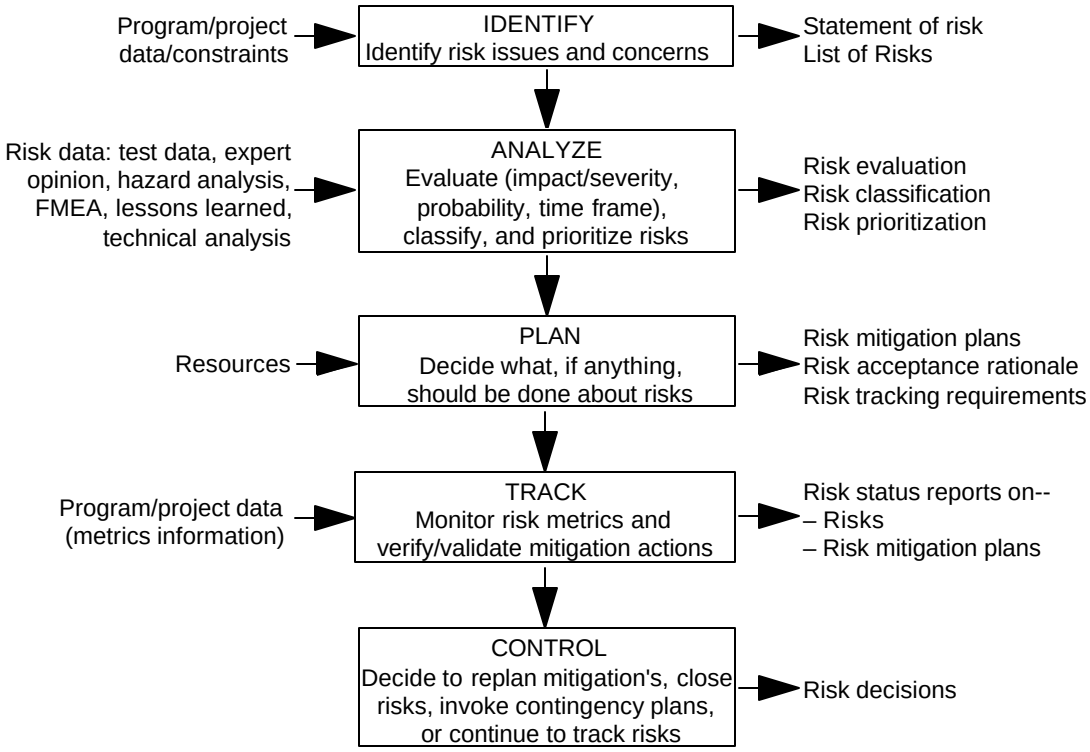
Friday, March 01, 2002 — **POES Risk List** — Page 1 of 4

ID	Title	Condition	Consequence	Risk	Prob.	Imp.	Ident.	Risk Date	Responsible	Action
87	*NOAA-M launch delay.*	DMSP S20 has not launched	NOAA-M 6/25/02 launch date in jeopardy.	R	75	2	1/28/02	Feb 25 2002	S. Pszcolka	Watch
Status: NOAA and DMSP must decide whether to destack DMSP booster and let NOAA-M launch as scheduled.2/19/02: Still working towards a 6/25 launch. Thursday telecon DMSP & NOAA to decide which goes first.										
85	*ADCS and SARP-3 Ripple Current Violation*	The ADCS and the SARP-3 instruments greatly exceed the GIIS requirments.	Could adversely affect the performance of other instruments and spacecraft components.	R	60	3	2/6/02	Mar 31 2002	J. Mentall	Mitigate
Status: CNES has been notified that their waiver will not be approved.2/19/02: CNES has asked for guidelines for external filters on A-DCS and SARP-3.										
86	*MHS EMI issues*	MHS is known to emit RF interference in the search and rescue bands and in AMSU-A2 channel 1. It is TBD whether this will effect search and rescue and AMSU-A2 on-orbit.	Could mask search and rescue emergency beacons and distort AMSU-A2 counts.	R	50	3	8/1/01	Mar 01 2002	H. Goldberg	Mitigate
Status: Test procedure written to measure MHS EMI on NOAA-N2/19/02: Trying to schedule date, doing sniffer test - the test will be in the EMI Chamber after EMI testing.										
80	*AMSU-A Pop Corn Noise*	AMSU-A on NOAA-N and MetOp exhibits unexplained increases in counts in channels called "pop corn" noise.	If the source of the noise is not identified and/or eliminated, the science processing results could be affected.	Y	34	2	8/7/01	Feb 01 2002	M. Walker	Research
Status: 9/19/01-Continuing analysis. Temperature stability may be an issue. 10/02/01-Analysis continues. Aerojet report needs to be corrected, then reviewed. 12/6 Review of NOAA-M data showed 4 events of popcorn noise. A meeting will be held 12/07/01 to dtermine next course of action. 12/19/01: Need tech memo from Aerojet, NOAA, etc. scientists to close action.1/16 Jim M. running a closure report end of week.2/19/02: Jim Mentall wrote a close out report. Everyone should read it before the next meeting when we will decide on closure.										
81	*Military Airlift for NOAA-M*	Due to Enduring freedom conflict, there is a risk that military airlift (C141) or larger will not be available to preform the NOAA-M transport from LMSSC/Moffett Field NAS to Vandenberg AFB. Hubble Space Telescope Servicing Mission transport impacted in October 2001.	This could impact the transport of NOAA-M from Lockheed to Vandenberg AFB to begin launch site activities	Y	34	2	10/2/01	Mar 25 2002	J. Frost	Mitigate
Status: J. Frost working with Code 230 to evaluate commercial transport alternatives to military airlift. Reading records from CCR 1687 when ground transportation was evaluated for transport of NOAA POES spacecraft from LMSSC to Vandenberg AFB.11/7 Investigating all alternatives, including foreign flight transportation or possibly ground transport. 12/6 Evaluating the possible use of Hercules L100-30 and Antanov cargo planes. 12/19/01: Still evaluating options (KSC at VAFB may perhaps go to Sunnyvale to get spacecraft.1/16 Meeting held today discussing military transport, C141's are available as well as a alternate C5, still looking into other military and commercial options. 2/6/02: Input received from Code 230 on various military and commercial air transport options. To discuss internally 2/7/02, and with VAFB in February.2/19/02: Working with GSFC Code 250 to check feasibility of transporting NOAA-M via military C-5/C-17, with configuration of NOAA-M transport container on bed of flatbed taller.										

Figure B-3 - POES Risk Tracking List

Appendix C

POES Risk Management Process



NOTE: Communication and documentation extend throughout all of the functions.